

WHAT IS CLAIMED IS:

1. A network status server comprising:

logical distance obtaining means for obtaining
respective logical distances between respective sites
provided with dispersed/arranged information

distribution servers and an accessed client; and

site determination means for determining an
optimum site from said respective sites based on said
logical distance.

2. The network status server according to claim 1
wherein said logical distance obtaining means obtains
said logical distance from a route server comprising
means for obtaining the logical distance to a
predetermined network address from path information
between the sites.

3. The network status server according to claim
2, further comprising path information storage means
for storing the path information between said
respective sites and the client,

wherein when said path information is stored in
said path information storage means, said logical
distance obtaining means obtains said logical distance
from the path information stored in said path
information storage means.

4. The network status server according to claim 3 wherein when there is no access from said client for a predetermined period, said path information storage means discards the path information between said
5 respective sites and the client.

5. The network status server according to claim 1 wherein said site determination means determines the site in which the respective logical distances from
10 said client are minimum as said optimum site.

6. The network status server according to claim 1, further comprising server determination means for determining the optimum information distribution server
15 from the information distribution servers in the optimum site determined by said site determination means based on a predetermined condition.

7. The network status server according to claim 6
20 wherein said server determination means determines the predetermined information distribution server in said optimum site as the optimum information distribution server.

8. The network status server according to claim 6
25 wherein said server determination means determines the information distribution server determined in a

predetermined order as the optimum information
distribution server.

9. The network status server according to claim 6
5 wherein said server determination means arbitrarily
determines the information distribution server from the
information distribution servers in said optimum site.

10. The network status server according to claim
10 6, further comprising state information collection
means for collecting state information in the site
provided with said dispersed/arranged information
distribution servers,

wherein said server determination means determines
15 the optimum information distribution server using the
collected state information in said optimum site as the
condition.

11. The network status server according to claim
20 10, further comprising state information storage means
for storing the collected state information in said
site,

wherein when the state information in said optimum
site is stored in said state information storage means,
25 said server determination means determines the optimum
information distribution server using the stored state
information in said optimum site as the condition.

12. The network status server according to claim 11 wherein said state information storage means stores said stored state information in the site for a predetermined period.

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13. The network status server according to claim 11 wherein said state information storage means approximates and stores said state information in the site by a predetermined approximation equation.

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14. The network status server according to claim 10 wherein said state information in the site comprises at least one information of said network state information in the site and said state information of the information distribution server in the site.

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15. The network status server according to claim 14 wherein when said network state information in the respective sites provided with the dispersed/arranged information distribution servers is collected, said collection means collects at least one of a congestion degree, number of packets, and number of packet errors in said respective sites.

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16. The network status server according to claim 14 wherein the collection means for collecting the state information of said dispersed/arranged

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information distribution servers collects at least one of a CPU load ratio, a CPU idle value, number of connection links, and a disk load ratio of said information distribution server.

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17. A network status server comprising:

logical distance obtaining means for obtaining respective logical distances between respective sites provided with dispersed/arranged information

10 distribution servers and an accessed client;

collection means for collecting network state information with said client, and state information in said respective sites; and

server determination means for determining the
15 optimum information distribution server from said dispersed/arranged information distribution servers based on the logical distance obtained by said logical distance obtaining means, the network state information between said respective sites and said client, and the
20 state information in said site collected by said collection means.

18. The network status server according to claim
17 wherein said logical distance obtaining means
25 obtains said logical distance from a route server comprising means for obtaining the logical distance to a predetermined network address from path information

between the sites.

19. The network status server according to claim
18, further comprising path information storage means
5 for storing the path information between said
respective sites and said client,

wherein when said path information is stored in
said path information storage means, said logical
distance obtaining means obtains said logical distance
10 from the path information stored in said path
information storage means.

20. The network status server according to claim
19 wherein when there is no access from said client for
15 a predetermined period, said path information storage
means discards the path information between said
respective sites and the client.

21. The network status server according to claim
20 17, further comprising state information storage means
for storing the network state information between said
respective sites and said client, and the state
information in said site,

wherein when said state information is stored in
25 said state information storage means, said collection
means collects said state information from the state
information stored in said state information storage

means.

22. The network status server according to claim
21 wherein when there is no access from said client for
5 a predetermined period, said state information storage
means discards the network state information between
said respective sites and the client.

23. The network status server according to claim
10 21 wherein said state information storage means stores
said stored state information in the site for a
predetermined period.

24. The network status server according to claim
15 21 wherein said state information storage means
approximates and stores said state information in the
site by a predetermined approximation equation.

25. The network status server according to claim
20 17 wherein when the network state information between
said respective sites and said client is collected,
said collection means collects at least one of a
response time, number of router steps, and a packet
loss ratio between said client and said respective
25 sites.

26. The network status server according to claim

17 wherein said state information in the site comprises
at least one of said network state information in the
site and said state information of the information
distribution server.

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27. The network status server according to claim
26 wherein when the network state information in said
respective sites is collected, said collection means
collects at least one of a congestion degree, number of
10 packets, and number of packet errors in said respective
sites.

28. The network status server according to claim
26 wherein when said state information of the
15 dispersed/arranged information distribution servers is
collected, said collection means collects at least one
of a CPU load ratio, a CPU idle value, a number of
connection links, and a disk load ratio of said
information distribution server.

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29. The network status server according to claim
17, further comprising: path information storage means
for storing path information between said respective
sites and the client; and

25 state information storage means for storing
network state information between said respective sites
and said client, and state information in said site,

wherein said server determination means determines the information distribution server in which an optimum server judgment value S_{nm} in the following equations satisfies a predetermined condition as the optimum information distribution server based on said stored path information, said state information and a predetermined weight coefficient;

- network state value: $K_{1n} = R_{Tn} \cdot A + R_{Nn} \cdot B + P_{Ln} \cdot C$
- in-site network state value:

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$$K_{2n} = C_{Sn} \cdot D + P_{Sn} \cdot E + E_{Sn} \cdot F$$

- server state value:

$$K_{3nm} = C_{PU_{nm}} \cdot G + I_{DLE_{nm}} \cdot H + L_{INK_{nm}} \cdot I + I_{O_{nm}} \cdot J$$

- optimum site judgment value:

$$K_n = K_{1n} \cdot K + K_{2n} \cdot L + A_{SLn} \cdot M$$

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$$\bullet \text{ optimum server judgment value: } S_{nm} = K_n \cdot N + K_{3nm} \cdot O$$

(additionally, n : number of server sites, m : number of servers, A to O : weight coefficients, and for respective symbols, A_{SLn} : logical distance between the networks by AS path (using the path information of BGP), R_{Tn} : response time, R_{Nn} : number of router steps (number of router hops), P_{Ln} : packet loss ratio, C_{Sn} : congestion degree in the site, P_{Sn} : number of packets in the site, E_{Sn} : number of packet errors, $C_{PU_{nm}}$: CPU load ratio, $I_{DLE_{nm}}$: CPU idle value, $L_{INK_{nm}}$: number of connection links, $I_{O_{nm}}$: disk load ratio).

30. A network status server comprising:

logical distance obtaining means for obtaining
respective logical distances between respective sites
provided with dispersed/arranged information
distribution servers and an accessed client;

5 collection means for collecting network state
information between said respective sites and said
client, and state information in said site;

site determination means for, when it is judged
that the access from said client is a first access,
10 determining the optimum site from the respective sites
based on the logical distance obtained by said logical
distance obtaining means;

first server determination means for determining
the optimum information distribution server from the
15 information distribution servers in the optimum site
determined by said site determination means based on a
predetermined condition; and

second server determination means for, when it is
judged that the access from the client is not the first
20 access, determining the optimum information
distribution server from said dispersed/arranged
information distribution servers based on the logical
distance obtained from said logical distance obtaining
means, the network state information between said
25 respective sites and said client, and the state
information in said site collected by said collection
means.

31. The network status server according to claim
30 wherein said logical distance obtaining means
obtains said logical distance from a route server
comprising means for obtaining the logical distance to
5 a predetermined network address from path information
between the sites.

32. The network status server according to claim
31, further comprising path information storage means
10 for storing the path information between said
respective sites and the client,

wherein when said path information is stored in
said path information storage means, said logical
distance obtaining means obtains said logical distance
15 from said path information.

33. The network status server according to claim
32 wherein when there is no access from said client for
a predetermined period, said path information storage
20 means discards the path information between said
respective sites and the client.

34. The network status server according to claim
27, further comprising state information storage means
25 for storing network state information between said
respective sites and said client, and state information
in said site,

wherein when said state information is stored in
said state information storage means, said collection
means collects said state information from the state
information stored in said state information storage
5 means.

35. The network status server according to claim
34 wherein when there is no access from said client for
a predetermined period, said state information storage
10 means discards said network state information between
the respective sites and the client.

36. The network status server according to claim
34 wherein said state information storage means stores
15 said stored state information in the site for a
predetermined period.

37. The network status server according to claim
34 wherein said state information storage means
20 approximates and stores said state information in the
site by a predetermined approximation equation.

38. The network status server according to claim
30 wherein said site determination means determines the
25 site in which the respective logical distances between
said respective sites and said client are minimum as
said optimum site.

39. The network status server according to claim
30 wherein said first server determination means
determines the predetermined information distribution
server in said optimum site as the optimum information
5 distribution server.

40. The network status server according to claim
30 wherein said first server determination means
determines the information distribution server
10 determined in a predetermined order as the optimum
information distribution server.

41. The network status server according to claim
30 wherein said first server determination means
15 arbitrarily determines the information distribution
server from the information distribution servers in
said optimum site.

42. The network status server according to claim
20 30 wherein said first server determination means
determines the optimum information distribution server
based on the state information in said optimum site.

43. The network status server according to claim
25 30 wherein when the network state information between
said respective sites and said client is collected,
said collection means collects at least one information

of a response time, number of router steps, and a packet loss ratio between said client and said respective sites.

5 44. The network status server according to claim
30 wherein said state information in the site comprises
either one of said network state information in the
site and the state information of the information
distribution server in the site.

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 45. The network status server according to claim
44 wherein when the network state information in said
site is collected, said collection means collects at
least one information of a congestion degree, number of
15 packets, and number of packet errors in said site.

 46. The network status server according to claim
44 wherein when said state information of the
dispersed/arranged information distribution servers is
20 collected, said collection means collects at least one
information of a CPU load ratio, a CPU idle value,
number of connection links, and a disk load ratio of
said dispersed/arranged information distribution
servers.

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 47. The network status server according to claim
30, further comprising: path information storage means

for storing path information between said respective sites and the client; and state information storage means for storing network state information between said respective sites and said client, and state information in said site provided with the dispersed/arranged information distribution servers, wherein said second server determination means determines the information distribution server in which an optimum server judgment value S_{nm} in the following equations satisfies a predetermined condition as the optimum information distribution server based on said stored path information, said state information and a predetermined weight coefficient;

- network state value: $K_{1n} = RT_n \cdot A + RN_n \cdot B + PL_n \cdot C$
- 15 • in-site network state value:
$$K_{2n} = CS_n \cdot D + PS_n \cdot E + ES_n \cdot F$$
- server state value:
$$K_{3nm} = CPU_{nm} \cdot G + IDLE_{nm} \cdot H + LINK_{nm} \cdot I + IO_{nm} \cdot J$$
- optimum site judgment value:
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$$K_n = K_{1n} \cdot K + K_{2n} \cdot L + ASL_n \cdot M$$
- optimum server judgment value: $S_{nm} = K_n \cdot N + K_{3nm} \cdot O$

(additionally, n: number of sites, m: number of servers, A to O: weight coefficients, and for respective symbols, ASL_n : logical distance between the networks by AS path (using the path information of BGP), RT_n : response time, RN_n : number of router steps (number of router hops), PL_n : packet loss ratio, CS_n :

congestion degree in the site, PSn: number of packets in the site, ESn: number of packet errors, CPU_{nm}: CPU load ratio, IDLE_{nm}: CPU idle value, LINK_{nm}: number of connection links, and IO_{nm}: disk load ratio).

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~~48.~~ An information distribution system comprising: dispersed/arranged information distribution servers; and a network status server,

said information distribution server comprising:

10 inquiry means for inquiring of said network status server about the optimum information distribution server among said dispersed/arranged information distribution servers in response to an accessing client;

15 response reception means for receiving a response from said network status server; and

indication means for indicating said optimum information distribution server to said accessing client,

20 said network status server comprising:

inquiry reception means for receiving the inquiry from said inquiry means;

logical distance obtaining means for obtaining respective distances between said respective sites provided with the dispersed/arranged information distribution servers and said client;

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site determination means for determining the

optimum site from the respective sites based on said obtained logical distance;

server determination means for determining the optimum information distribution server from the information distribution servers in the optimum site determined by said site determination means based on a predetermined condition; and

response transmission means for returning the server determined by said server determination means as the optimum server to said dispersed/arranged information distribution servers having transmitted the inquiry.

49. The information distribution system according to claim 48, further comprising: a route server,

said route server comprising: means for obtaining a logical distance to a predetermined network address from the path information between the sites, and

providing said logical distance when said logical distance obtaining means obtains said logical distance.

50. The information distribution system according to claim 48 wherein said information distribution server further comprises:

means for collecting network state information between the site to which the information distribution server belongs and said client; and

network state transmission means for transmitting said collected network state information to the network status server.

5 51. The information distribution system according to claim 48 wherein said information distribution server further comprises:

 means for collecting network state information in the site to which the information distribution server belongs, and the state information of the information distribution server; and

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 in-site information transmission means for transmitting said collected network state information in the site, and the state information of the information distribution server to the network status server.

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~~52.~~ An information distribution system comprising: dispersed/arranged information distribution servers; and a network status server,

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 said information distribution server comprising:

 inquiry means for inquiring of said network status server about the optimum information distribution server among said dispersed/arranged information distribution servers in response to an accessing client;

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 response reception means for receiving a response

from said network status server; and

indication means for indicating said optimum information distribution server to said accessing client,

5 said network status server comprising:

inquiry reception means for receiving the inquiry from said inquiry means;

10 logical distance obtaining means for obtaining respective distances between respective sites provided with said dispersed/arranged information distribution servers and said client;

collection means for collecting network state information between said respective sites and said client, and state information in said site;

15 server determination means for determining the optimum information distribution server from said dispersed/arranged information distribution servers based on the logical distance obtained by said logical distance obtaining means, the network state information
20 between said respective sites and said client, and said state information in the site collected by said collection means; and

25 response transmission means for returning the server determined by said server determination means as said optimum server to said dispersed/arranged information distribution servers having transmitted the inquiry.

53. The information distribution system according to claim 52, further comprising: a route server,

said route server comprising means for obtaining a logical distance to a predetermined network address

5 from the path information between the sites, and

providing said logical distance when said logical distance obtaining means obtains said logical distance.

54. The information distribution system according to claim 52 wherein said information distribution server further comprises:

means for collecting network state information between the site to which the information distribution server belongs and said accessing client; and

15 network state transmission means for transmitting said collected network state information to the network status server.

55. The information distribution system according to claim 52 wherein said information distribution server further comprises:

means for collecting network state information of the site to which the information distribution server belongs, and the state information of the information distribution server; and

25 in-site information transmission means for transmitting said collected network state information

in the site, and the state information of the information distribution server to the network status server.

5 56. An information distribution system comprising: dispersed/arranged information distribution servers; and a network status server,

 said information distribution server comprising:

 inquiry means for inquiring of said network status
10 server about the optimum information distribution server among said dispersed/arranged information distribution servers in response to an accessing client;

 response reception means for receiving a response
15 from said network status server; and

 indication means for indicating the optimum information distribution server to said client,

 said network status server comprising:

 inquiry reception means for receiving the inquiry
20 from said inquiry means;

 logical distance obtaining means for obtaining respective distances between respective sites provided with said dispersed/arranged information distribution servers and the accessing client;

25 collection means for collecting network state information between said respective sites and said client, and state information in the respective sites;

site determination means for, when it is judged that the access from said client is a first access, determining the optimum site from said respective sites based on the logical distance obtained by said logical distance obtaining means;

first server determination means for determining the optimum information distribution server from the information distribution servers in said respective sites based on a predetermined condition;

second server determination means for, when it is judged that the access from said client is not the first access, determining the optimum information distribution server from said dispersed/arranged information distribution servers based on the logical distance obtained from said logical distance obtaining means, the network state information between said respective sites and said client, and the state information in said respective sites collected by said collection means; and

response transmission means for returning the server determined by said first server determination means or said second server determination means as said optimum server to said dispersed/arranged information distribution servers having transmitted the inquiry.

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57. The information distribution system according to claim 56, further comprising: a route server,

said route server comprising means for obtaining a logical distance to a predetermined network address from the path information between the sites, and

providing said logical distance when said logical distance obtaining means obtains said logical distance.

58. The information distribution system according to claim 56 wherein said information distribution server further comprises:

10 means for collecting network state information between the site to which the information distribution server belongs and said accessing client; and

network state transmission means for transmitting said collected network state information to the network status server.

59. The information distribution system according to claim 56 wherein said information distribution server further comprises:

20 means for collecting network state information of the site to which the information distribution server belongs, and the state information of the information distribution server; and

in-site information transmission means for transmitting said collected network state information in the site, and the state information of the information distribution server to the network status

server.

5 ~~60.~~ A network status server control method of
controlling a network status server, the method
comprising:

 a logical distance obtaining step of obtaining
respective logical distances between respective sites
provided with dispersed/arranged information
distribution servers and an accessed client; and
10 site determining step of determining an optimum
site from said respective sites based on said obtained
logical distance.

 61. The network status server control method
15 according to claim 60 wherein said logical distance
obtaining step comprises obtaining said logical
distance from a route server comprising means for
obtaining the logical distance to a predetermined
network address from path information between the
20 sites.

 62. The network status server control method
according to claim 61 wherein said network status
server comprises path information storage means,
25 said network status server control method further
comprises a path information storing step of storing
the path information between said respective sites and

said client, and

when said path information is stored in said path
information storage means, said logical distance
obtaining step comprises obtaining said logical
5 distance from the path information stored in said path
information storage means.

63. The network status server control method
according to claim 62 wherein when there is no access
10 from said client for a predetermined period, said path
information storing step comprises discarding the path
information between said respective sites and the
client stored in said path information storage means.

15 64. The network status server control method
according to claim 60 wherein said site determining
step comprises determining the site in which the
respective logical distances between said respective
sites and said client are minimum as said optimum site.

20 65. The network status server control method
according to claim 60, further comprising a server
determining step of determining the optimum information
distribution server from the information distribution
25 servers in the optimum site determined in said site
determining step based on a predetermined condition.

66. The network status server control method according to claim 65 wherein said server determining step comprises determining the predetermined information distribution server in said optimum site as
5 the optimum information distribution server.

67. The network status server control method according to claim 65 wherein said server determining step comprises determining the information distribution
10 server determined in a predetermined order as the optimum information distribution server.

68. The network status server control method according to claim 65 wherein said server determining
15 step comprises arbitrarily determining the information distribution server from the information distribution servers in said optimum site.

69. The network status server control method
20 according to claim 65, further comprising a state information collecting step of collecting state information in the site provided with said dispersed/arranged information distribution servers,
wherein said server determining step comprises
25 determining the optimum information distribution server using the collected state information in said optimum site as a condition.

70. The network status server control method according to claim 69 wherein said network status server comprises state information storage means,

5 said network status server control method further comprises a state information storing step of storing the collected state information in said site into the state information storage means, and

10 when the state information in said optimum site is stored in said state information storage means, said server determining step comprises determining the optimum information distribution server using the stored state information in said optimum site as the condition.

15 71. The network status server control method according to claim 70, further comprising a state information discarding step of discarding the state information in the site stored in said state information storage means after a predetermined period
20 elapses.

72. The network status server control method according to claim 70 wherein said state information storing step comprises approximating and storing said
25 state information in the site by a predetermined approximation equation.

73. The network status server control method according to claim 69 wherein said state information in the site comprises at least one information of said network state information in the site and said state information of the information distribution server in the site.

74. The network status server control method according to claim 73 wherein when said network state information in the respective sites provided with the dispersed/arranged information distribution servers is collected, said collecting step comprises collecting at least one of a congestion degree, number of packets, and number of packet errors in said respective sites.

75. The network status server control method according to claim 73 wherein the collecting step of collecting said state information of the dispersed/arranged information distribution servers comprises collecting at least one of a CPU load ratio, a CPU idle value, number of connection links, and a disk load ratio of said information distribution server.

~~76.~~ A network status server control method for controlling a network status server, the method comprising:

a logical distance obtaining step of obtaining
respective logical distances between respective sites
provided with dispersed/arranged information
distribution servers and an accessed client;

5 a collecting step of collecting network state
information between said respective sites and said
client, and state information in said site; and

 a server determining step of determining the
optimum information distribution server from said
10 information distribution servers based on said obtained
logical distance, the network state information between
said respective sites and said client, and the state
information in said site collected in said collecting
step.

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77. The network status server control method
according to claim 76 wherein said logical distance
obtaining step comprises obtaining said logical
distance from a route server comprising means for
20 obtaining the logical distance to a predetermined
network address from path information between the
sites.

78. The network status server control method
25 according to claim 77 wherein said network status
server comprises path information storage means,
said network status server control method further

comprises a path information storing step of storing the path information between said respective sites and said client into said path information storage means, and

5 when said path information is stored in said path information storage means, said logical distance obtaining step comprises obtaining said logical distance from the path information stored in said path information storing step.

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79. The network status server control method according to claim 78 wherein when there is no access from said client for a predetermined period, said path information storing step comprises discarding the path information between said respective sites and the client stored in said path information storage means.

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80. The network status server control method according to claim 76 wherein said network status server comprises state information storage means,

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 said network status server control method further comprises a state information storing step of storing the network state information between said respective sites and said client, and the state information in said site into the state information storage means, and

25 when said state information is stored in said state information storage means, said collecting step

comprises collecting said state information from said state information stored in said state information storage means.

5 81. The network status server control method according to claim 80 wherein when there is no access from said client for a predetermined period, said state information storing step comprises discarding said network state information between the respective sites
10 and the client stored in said state information storage means.

 82. The network status server control method according to claim 80, further comprising a state
15 information discarding step of discarding the state information in the site stored in said state information storage means after the predetermined period elapses.

20 83. The network status server control method according to claim 80 wherein said state information storing step comprises approximating and storing said state information in the site by a predetermined approximation equation.

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 84. The network status server control method according to claim 76 wherein when the network state

information between said respective sites and said client is collected, said collecting step comprises collecting at least one of a response time, number of router steps, and a packet loss ratio between said
5 accessed client and said respective sites.

85. The network status server control method according to claim 76 wherein said state information in the respective sites comprises at least one of said
10 network state information in the respective sites and said state information of the dispersed/arranged information distribution servers.

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86. The network status server control method according to claim ~~85~~⁷⁶ wherein when the network state
15 information in said respective sites is collected, said collecting step comprises collecting at least one of a congestion degree, number of packets, and number of packet errors in said respective sites.

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87. The network status server control method according to claim 85 wherein when said state information of the dispersed/arranged information distribution servers is collected, said collecting step
25 comprises collecting at least one of a CPU load ratio, a CPU idle value, number of connection links, and a disk load ratio of said dispersed/arranged information

distribution servers.

88. The network status server control method according to claim 76 wherein said network status
5 server comprises path information storage means and state information storage means,

said network status server control method further comprises: a path information storing step of storing path information between said respective sites and said
10 client into the path information storage means; and

a state information storing step of storing network state information between said respective sites and said client, and state information in said respective sites into the state information storage
15 means,

said server determining step comprises determining the information distribution server in which an optimum server judgment value S_{nm} in the following equations satisfies a predetermined condition as the optimum
20 information distribution server based on said stored path information, said state information and a predetermined weight coefficient;

- network state value: $K_{1n} = R_{Tn} \cdot A + R_{Nn} \cdot B + P_{Ln} \cdot C$
- in-site network state value:

25 $K_{2n} = C_{sn} \cdot D + P_{Sn} \cdot E + E_{Sn} \cdot F$

- server state value:

$$K_{3nm} = CPU_{nm} \cdot G + IDLE_{nm} \cdot H + LINK_{nm} \cdot I + IO_{nm} \cdot J$$

- optimum site judgment value:

$$K_n = K_{1n} \cdot K + K_{2n} \cdot L + A S_{Ln} \cdot M$$

- optimum server judgment value: $S_{nm} = K_n \cdot N + K_{3nm} \cdot O$

(additionally, n: number of sites, m: number of
5 servers, A to O: weight coefficients, and for
respective symbols, AS_{Ln} : logical distance between the
networks by AS path (using the path information of
BGP), RT_n : response time, RN_n : number of router steps
(number of router hops), PL_n : packet loss ratio, CS_n :
10 congestion degree in the site, PS_n : number of packets
in the site, ES_n : number of packet errors, CPU_{nm} : CPU
load ratio, $IDLE_{nm}$: CPU idle value, $LINK_{nm}$: number of
connection links, IO_{nm} : disk load ratio).

15 ~~89.~~ A network status server control method
comprising:

a logical distance obtaining step of obtaining
respective logical distances between respective sites
provided with dispersed/arranged information
20 distribution servers and an accessed client;

a collecting step of collecting network state
information between said respective sites and said
client, and state information in said respective sites;

a site determining step of, when it is judged that
25 the access from said client is a first access,
determining the optimum site from said respective sites
based on said obtained logical distance;

a first server determining step of determining the optimum information distribution server from the information distribution servers in said optimum site based on a predetermined condition; and

5 a second server determining step of, when it is judged that the access from said client is not the first access, determining the optimum information distribution server from said dispersed/arranged information distribution servers based on said obtained
10 logical distance, said network state information between said respective sites provided with the dispersed/arranged information distribution servers and said client, and said state information in the site provided with the dispersed/arranged information
15 distribution servers collected in said collecting step.

90. The network status server control method according to claim 89 wherein said logical distance obtaining step comprises obtaining said logical
20 distance from a route server comprising means for obtaining the logical distance to a predetermined network address from path information between the sites.

25 91. The network status server control method according to claim 90 wherein said network status server comprises path information storage means,

said network status server control method further comprises a path information storing step of storing path information between said respective sites provided with the dispersed/arranged information distribution servers and said client into said path information storage means, and

when said path information is stored in said path information storage means, said logical distance obtaining step comprises obtaining said logical distance from said path information stored in the path information storage means.

92. The network status server control method according to claim 91 wherein when there is no access from said client for a predetermined period, said path information storing step comprises discarding said path information between the respective sites and the client stored in said path information storage means.

93. The network status server control method according to claim 89 wherein said network status server comprises state information storage means,

said network status server control method comprises a state information storing step of storing network state information between said respective sites provided with the dispersed/arranged information distribution servers and said client, and state

information in said site provided with the dispersed/arranged information distribution servers into said state information storage means, and

when said state information is stored in said
5 state information storage means, said collecting step comprises collecting said state information from said state information stored in said state information storage means.

10 94. The network status server control method according to claim 93 wherein when there is no access from said client for a predetermined period, said state information storing step comprises discarding said network state information between the respective sites
15 and the client stored in said state information storage means.

95. The network status server control method according to claim 93, further comprising a state
20 information discarding step of discarding the state information in the site stored in said state information storage means after the predetermined period elapses.

25 96. The network status server control method according to claim 93 wherein said state information storing step comprises approximating and storing said

state information in the site by a predetermined approximation equation.

97. The network status server control method
5 according to claim 89 wherein said site determining
step comprises determining the site in which the
respective logical distances between said respective
sites provided with the dispersed/arranged information
distribution servers and said accessed client are
10 minimum as said optimum site.

98. The network status server control method
according to claim 89 wherein said first server
determining step comprises determining the
15 predetermined information distribution server in said
optimum site as the optimum information distribution
server.

99. The network status server control method
20 according to claim 89 wherein said first server
determining step comprises determining the information
distribution server determined in a predetermined order
as the optimum information distribution server.

25 100. The network status server control method
according to claim 89 wherein said first server
determining step comprises arbitrarily determining the

information distribution server from the information distribution servers in said optimum site.

101. The network status server control method
5 according to claim 89 wherein said first server determining step comprises determining the optimum information distribution server based on the state information in said optimum site.

10 102. The network status server control method according to claim 89 wherein when the network state information between said respective sites provided with the dispersed/arranged information distribution servers and said accessed client is collected, said collecting
15 step comprises collecting at least one information of a response time, number of router steps, and a packet loss ratio between said accessed client and said respective sites.

20 103. The network status server control method according to claim 89 wherein said state information in the site comprises at least one of said network state information in the site and said state information of the information distribution server in the site.

25

104. The network status server control method according to claim 103 wherein when the network state

information in said site provided with the dispersed/arranged information distribution servers is collected, said collecting step comprises collecting at least one information of a congestion degree, number of packets, and number of packet errors in said site.

105. The network status server control method according to claim 103 wherein when said state information of the dispersed/arranged information distribution servers is collected, said collecting step comprises collecting at least one information of a CPU load ratio, a CPU idle value, number of connection links, and a disk load ratio of said information distribution server.

106. The network status server control method according to claim 89 wherein said network status server comprises path information storage means and state information storage means,

said network status server control method further comprises: a path information storing step of storing path information between said respective sites provided with the dispersed/arranged information distribution servers and said client into said path information storage means; and

a state information storing step of storing network state information between said respective sites

provided with the dispersed/arranged information
distribution servers and said client, and state
information in said site provided with the
dispersed/arranged information distribution servers
5 into said state information storage means, and

said second server determining step comprises
determining the information distribution server in
which an optimum server judgment value S_{nm} in the
following equations satisfies a predetermined condition
10 as the optimum information distribution server based on
said stored path information, said state information
and a predetermined weight coefficient;

- network state value: $K1n = RTn \cdot A + RNn \cdot B + PLn \cdot C$
- in-site network state value:

15
$$K2n = CSn \cdot D + PSn \cdot E + ESn \cdot F$$

- server state value:

$$K3nm = CPU_{nm} \cdot G + IDLE_{nm} \cdot H + LINK_{nm} \cdot I + IO_{nm} \cdot J$$

- optimum site judgment value:

$$K_n = K1n \cdot K + K2n \cdot L + ASLn \cdot M$$

- 20 • optimum server judgment value: $S_{nm} = K_n \cdot N + K3nm \cdot O$

(additionally, n: number of sites, m: number of
servers, A to O: weight coefficients, and for
respective symbols, $ASLn$: logical distance between the
networks by AS path (using the path information of
25 BGP), RTn : response time, RNn : number of router steps
(number of router hops), PLn : packet loss ratio, CSn :
congestion degree in the site, PSn : number of packets

in the site, ES_n: number of packet errors, CPU_{nm}: CPU load ratio, IDLE_{nm}: CPU idle value, LINK_{nm}: number of connection links, and IO_{nm}: disk load ratio).

- 5 ~~107~~. An information distribution system control method for controlling an information distribution system comprising: dispersed/arranged information distribution servers; and a network status server, said method comprising: in said information
- 10 distribution server,
- an inquiring step of inquiring of said network status server about the optimum information distribution server among said information distribution servers in response to an accessing client;
- 15 a response receiving step of receiving a response from said network status server; and
- an indicating step of indicating said optimum information distribution server to said accessing client,
- 20 in said network status server,
- an inquiry receiving step of receiving the inquiry from said inquiring step;
- a logical distance obtaining step of obtaining respective distances between said respective sites
- 25 provided with the dispersed/arranged information distribution servers and said client;
- a site determining step of determining the optimum

site from said respective sites provided with the dispersed/arranged information distribution servers based on said obtained logical distance;

5 a server determining step of determining the optimum information distribution server from the information distribution servers in the optimum site determined by said site determining step based on a predetermined condition; and

10 a response transmitting step of returning the server determined in said server determining step as said optimum server to said information distribution server having transmitted the inquiry.

15 108. The information distribution system control method according to claim 107 wherein said information distribution system further comprises a route server,

said control method comprises, in said route server a logical distance calculating step of obtaining a logical distance to a predetermined network address from the path information between the sites, and

20 said logical distance obtaining step comprises obtaining said logical distance calculated in said logical distance calculating step.

25 109. The information distribution system control method according to claim 107, further comprising: in said information distribution server,

a step of collecting network state information between the site to which the information distribution server belongs and said accessing client; and

5 a network state transmitting step of transmitting said collected network state information to the network status server.

110. The information distribution system control method according to claim 107, further comprising: in
10 said information distribution server, a step of collecting network state information in the site to which the information distribution server belongs, and the state information of the information distribution server; and

15 an in-site information transmitting step of transmitting said collected network state information in the site, and the state information of the information distribution server to the network status server.

20

~~111~~. An information distribution system control method for controlling an information distribution system comprising: dispersed/arranged information distribution servers; and a network status server,

25 said method comprising: in said information distribution server,

an inquiring step of inquiring of said network

status server about the optimum information
distribution server among said information distribution
servers in response to an accessing client;

5 a response receiving step of receiving a response
from said network status server; and

an indicating step of indicating said optimum
information distribution server to said client, and
in said network status server,

10 an inquiry receiving step of receiving the inquiry
from said inquiring step;

a logical distance obtaining step of obtaining
respective logical distances between said respective
sites and said client;

15 a collecting step of collecting network state
information between said respective sites and said
client, and state information in said respective sites;

a server determining step of determining the
optimum information distribution server from said
dispersed/arranged information distribution servers
20 based on the logical distance obtained in said logical
distance obtaining step, the network state information
between said respective sites and said client, and said
state information in the site collected in said
collecting step; and

25 a response transmitting step of returning the
server determined in said server determining step as
said optimum server to said dispersed/arranged

information distribution servers having transmitted the inquiry.

112. The information distribution system control
5 method according to claim 111 wherein said information distribution system comprises a route server,

said control method comprises, in said route server, a logical distance calculating step of
10 obtaining a logical distance to a predetermined network address from the path information between the sites, and

said logical distance obtaining step comprises obtaining said logical distance calculated in said logical distance calculating step.
15

113. The information distribution system control method according to claim 111, further comprising: in said information distribution server,

a step of collecting network state information
20 between the site to which the information distribution server belongs and said accessing client; and

a network state transmitting step of transmitting said collected network state information to the network status server.
25

114. The information distribution system control method according to claim 111, further comprising: in

said information distribution server,

5 a step of collecting network state information of the site to which the information distribution server belongs, and the state information of the information distribution server; and

10 an in-site information transmitting step of transmitting said collected network state information in the site, and the state information of the information distribution server to the network status server.

~~115.~~ An information distribution system control method for controlling an information distribution system comprising: dispersed/arranged information distribution servers; and a network status server,

15 said control method comprising: in said information distribution server,

20 an inquiring step of inquiring of said network status server about the optimum information distribution server among said information distribution servers in response to an accessing client;

a response receiving step of receiving a response from said network status server; and

25 an indicating step of indicating said optimum information distribution server to said client,

in said network status server,

an inquiry receiving step of receiving the inquiry

from said inquiring step;

a logical distance obtaining step of obtaining respective distances between said respective sites and said client;

5 a collecting step of collecting network state information between said respective sites and said client, and state information in said respective sites;

a site determining step of, when it is judged that the access from said client is a first access,
10 determining the optimum site from said respective sites provided with the dispersed/arranged information distribution servers based on the logical distance obtained in said logical distance obtaining step;

a first server determining step of determining the
15 optimum information distribution server from the information distribution servers in the optimum site determined in said site determining step based on a predetermined condition;

a second server determining step of, when it is
20 judged that the access from said client is not the first access, determining the optimum information distribution server from said information distribution servers based on the logical distance obtained in said logical distance obtaining step, the network state
25 information between said respective sites provided with the dispersed/arranged information distribution servers and said client, and said state information in the site

provided with the dispersed/arranged information
distribution servers collected in said collecting step;
and

5 a response transmitting step of returning the
server determined in said first server determining step
or said second server determining step as said optimum
server to said dispersed/arranged information
distribution servers having transmitted the inquiry.

10 116. The information distribution system control
method according to claim 115 wherein said information
distribution system further comprises a route server,

said control method comprises, in said route
server, a logical distance calculating step of
15 obtaining a logical distance to a predetermined network
address from the path information between the sites,
and

said logical distance obtaining step comprises
obtaining said logical distance calculated in said
20 logical distance calculating step.

117. The information distribution system control
method according to claim 115, further comprising: in
said information distribution server,

25 a step of collecting network state information
between the site to which the information distribution
server belongs and said accessing client; and

a network state transmitting step of transmitting said collected network state information to the network status server.

5 118. The information distribution system control method according to claim 115, further comprising: in said information distribution server,

10 a step of collecting network state information of the site to which the information distribution server belongs, and the state information of the information distribution server; and

15 an in-site information transmitting step of transmitting said collected network state information in the site, and the state information of the information distribution server to the network status server.

20 ~~119.~~ A storage medium for storing a computer readable network status server control program for controlling a network status server, the network status server control program comprising:

25 a logical distance obtaining step of obtaining respective logical distances between respective sites provided with dispersed/arranged information distribution servers and an accessed client; and

 site determining step of determining an optimum site from said respective sites based on said obtained

logical distance.

120. The storage medium for storing the computer
readable network status server control program
5 according to claim 119 wherein said logical distance
obtaining step comprises obtaining said logical
distance from a route server comprising means for
obtaining the logical distance to a predetermined
network address from path information between the
10 sites.

121. The storage medium for storing the computer
readable network status server control program
according to claim 120 wherein said network status
15 server comprises path information storage means,
said network status server control program further
comprises a path information storing step of storing
the path information between said respective sites
provided with the dispersed/arranged information
20 distribution servers and said client, and

when said path information is stored in said path
information storage means, said logical distance
obtaining step comprises obtaining said logical
distance from the path information stored in said path
25 information storage means.

122. The storage medium for storing the computer

readable network status server control program
according to claim 121 wherein when there is no access
from said client for a predetermined period, said path
information storing step comprises discarding the path
5 information between said respective sites and the
client stored in said path information storage means.

123. The storage medium for storing the computer
readable network status server control program
10 according to claim 119 wherein said site determining
step comprises determining the site in which the
respective logical distances between said respective
sites and said client are minimum as said optimum site.

15 124. The storage medium for storing the computer
readable network status server control program
according to claim 119 wherein said program further
comprises a server determining step of determining the
optimum information distribution server from the
20 information distribution servers in the optimum site
determined in said site determining step based on a
predetermined condition.

25 125. The storage medium for storing the computer
readable network status server control program
according to claim 124 wherein said server determining
step comprises determining the predetermined

information distribution server in said optimum site as the optimum information distribution server.

126. The storage medium for storing the computer
5 readable network status server control program
according to claim 124 wherein said server determining
step comprises determining the information distribution
server determined in a predetermined order as the
optimum information distribution server.

10

127. The storage medium for storing the computer
readable network status server control program
according to claim 124 wherein said server determining
step comprises arbitrarily determining the information
15 distribution server from the information distribution
servers in said optimum site.

128. The storage medium for storing the computer
readable network status server control program
20 according to claim 124 wherein said program further
comprises a state information collecting step of
collecting state information in the site provided with
said dispersed/arranged information distribution
servers, and

25 said server determining step comprises determining
the optimum information distribution server using the
collected state information in said optimum site as a

condition.

129. The storage medium for storing the computer
readable network status server control program
5 according to claim 128 wherein said network status
server comprises state information storage means,
said network status server control program further
comprises a state information storing step of storing
the collected state information in said site into the
10 state information storage means, and
when the state information in said optimum site is
stored in said state information storage means, said
server determining step comprises determining the
optimum information distribution server using the
15 stored state information in said optimum site as the
condition.

130. The storage medium for storing the computer
readable network status server control program
20 according to claim 129 wherein said program further
comprises a state information discarding step of
discarding the state information in the site stored in
said state information storage means after a
predetermined period elapses.

25

131. The storage medium for storing the computer
readable network status server control program

according to claim 129 wherein said state information storing step comprises approximating and storing said state information in the site by a predetermined approximation equation.

5

132. The storage medium for storing the computer readable network status server control program according to claim 128 wherein said state information in the site comprises at least one information of said network state information in the site and said state information of the information distribution server in the site.

133. The storage medium for storing the computer readable network status server control program according to claim 132 wherein when said network state information in the respective sites provided with the dispersed/arranged information distribution servers is collected, said collecting step comprises collecting at least one of a congestion degree, number of packets, and number of packet errors in said respective sites.

134. The storage medium for storing the computer readable network status server control program according to claim 132 wherein the collecting step of collecting said state information of the dispersed/arranged information distribution servers

comprises collecting at least one of a CPU load ratio, a CPU idle value, number of connection links, and a disk load ratio of said information distribution server.

5

~~135.~~ A storage medium for storing a computer readable network status server control program for controlling a network status server, the program comprising:

10 a logical distance obtaining step of obtaining respective logical distances between respective sites provided with dispersed/arranged information distribution servers and an accessed client;

15 a collecting step of collecting network state information between said respective sites and said client, and state information in said site; and

20 a server determining step of determining the optimum information distribution server from said dispersed/arranged information distribution servers based on the logical distance obtained in said logical distance obtaining step, the network state information between said respective sites and said client, and the state information in said site collected in said collecting step.

25

136. The storage medium for storing the computer readable network status server control program

according to claim 135 wherein said logical distance
obtaining step comprises obtaining said logical
distance from a route server comprising means for
obtaining the logical distance to a predetermined
5 network address from path information between the
sites.

137. The storage medium for storing the computer
readable network status server control program
10 according to claim 136 wherein said network status
server comprises path information storage means,
said network status server control program further
comprises a path information storing step of storing
the path information between said respective sites and
15 said client into said path information storage means,
and

when said path information is stored in said path
information storage means, said logical distance
obtaining step comprises obtaining said logical
20 distance from the path information stored in said path
information storing step.

138. The storage medium for storing the computer
readable network status server control program
25 according to claim 137 wherein when there is no access
from said client for a predetermined period, said path
information storing step comprises discarding the path

information between said respective sites and the client stored in said path information storage means.

139. The storage medium for storing the computer readable network status server control program according to claim 135 wherein said network status server comprises state information storage means,

said network status server control program further comprises a state information storing step of storing the network state information between said respective sites and said client, and the state information in said respective sites into the state information storage means, and

when said state information is stored in said state information storage means, said collecting step comprises collecting said state information from said state information stored in said state information storage means.

140. The storage medium for storing the computer readable network status server control program according to claim 139 wherein when there is no access from said client for a predetermined period, said state information storing step comprises discarding said network state information between the respective sites and the client stored in said state information storage means.

141. The storage medium for storing the computer
readable network status server control program
according to ^{claim 139}~~claim 139~~ wherein said program further
comprises a state information discarding step of
5 discarding the state information in the site stored in
said state information storage means after the
predetermined period elapses.

142. The storage medium for storing the computer
10 readable network status server control program
according to claim 139 wherein said state information
storing step comprises approximating and storing said
state information in the site by a predetermined
approximation equation.

15 143. The storage medium for storing the computer
readable network status server control program
according to claim 135 wherein when the network state
information between said respective sites and said
20 client is collected, said collecting step comprises
collecting at least one of a response time, number of
router steps, and a packet loss ratio between said
accessed client and said respective sites.

25 144. The storage medium for storing the computer
readable network status server control program
according to claim 135 wherein said state information

in the respective sites comprises at least one of said network state information in the site provided with the dispersed/arranged information distribution servers and said state information of the information distribution servers.

145. The storage medium for storing the computer readable network status server control program according to claim 144 wherein when the network state information in said respective sites is collected, said collecting step comprises collecting at least one of a congestion degree, number of packets, and number of packet errors in said respective sites.

146. The storage medium for storing the computer readable network status server control program according to claim 144 wherein when said state information of the dispersed/arranged information distribution servers is collected, said collecting step comprises collecting at least one of a CPU load ratio, a CPU idle value, number of connection links, and a disk load ratio of said information distribution server.

147. The storage medium for storing the computer readable network status server control program according to claim 135 wherein said network status

server comprises path information storage means and state information storage means,

said network status server control program further comprises: a path information storing step of storing
5 path information between said respective sites and said client into the path information storage means; and

a state information storing step of storing network state information between said respective sites and said client, and state information in said
10 respective sites into the state information storage means, and

said server determining step comprises determining the information distribution server in which an optimum server judgment value S_{nm} in the following equations
15 satisfies a predetermined condition as the optimum information distribution server based on said stored path information, said state information and a predetermined weight coefficient;

- network state value: $K_{1n} = RT_n \cdot A + RN_n \cdot B + PL_n \cdot C$
- in-site network state value:

$$K_{2n} = C_{sn} \cdot D + P_{Sn} \cdot E + E_{Sn} \cdot F$$

- server state value:
 $K_{3nm} = CPU_{nm} \cdot G + IDLE_{nm} \cdot H + LINK_{nm} \cdot I + IO_{nm} \cdot J$

- optimum site judgment value:
25 $K_n = K_{1n} \cdot K + K_{2n} \cdot L + ASL_n \cdot M$

• optimum server judgment value: $S_{nm} = K_n \cdot N + K_{3nm} \cdot O$
(additionally, n: number of sites, m: number of

servers, A to O: weight coefficients, and for
respective symbols, ASLn: logical distance between the
networks by AS path (using the path information of
BGP), RTn: response time, RNn: number of router steps
5 (number of router hops), PLn: packet loss ratio, CSn:
congestion degree in the site, PSn: number of packets
in the site, ESn: number of packet errors, CPUnm: CPU
load ratio, IDLEnm: CPU idle value, LINKnm: number of
connection links, IOnm: disk load ratio).

10

~~148.~~ A storage medium for storing a computer
readable network status server control program
comprising:

15 a logical distance obtaining step of obtaining
respective logical distances between respective sites
provided with dispersed/arranged information
distribution servers and an accessed client;

20 a collecting step of collecting network state
information between said respective sites and said
client, and state information in said respective sites;

a site determining step of, when it is judged that
the access from said client is a first access,
determining the optimum site from said respective sites
provided with the dispersed/arranged information
25 distribution servers based on the logical distance
obtained in said logical distance obtaining step;

a first server determining step of determining the

optimum information distribution server from the information distribution servers in said optimum site determined in said site determining step based on a predetermined condition; and

5 a second server determining step of, when it is judged that the access from said client is not the first access, determining the optimum information distribution server from said dispersed/arranged information distribution servers based on the logical
10 distance obtained in said logical distance obtaining step, the network state information between said respective sites provided with the dispersed/arranged information distribution servers and said client, and
15 said state information in the site provided with the dispersed/arranged information distribution servers collected in said collecting step.

149. The storage medium for storing the computer readable network status server control program
20 according to claim 148 wherein said logical distance obtaining step comprises obtaining said logical distance from a route server comprising means for obtaining the logical distance to a predetermined network address from path information between the
25 sites.

150. The storage medium for storing the computer

readable network status server control program
according to claim 149 wherein said network status
server comprises path information storage means,

5 said network status server control program further
comprises a path information storing step of storing
path information between said respective sites provided
with the dispersed/arranged information distribution
servers and said client into said path information
storage means, and

10 when said path information is stored in said path
information storage means, said logical distance
obtaining step comprises obtaining said logical
distance from said path information stored in the path
information storage means.

15

151. The storage medium for storing the computer
readable network status server control program
according to claim 150 wherein when there is no access
from said client for a predetermined period, said path
20 information storing step comprises discarding said path
information between the respective sites and the client
stored in said path information storage means.

25 152. The storage medium for storing the computer
readable network status server control program
according to claim 148 wherein said network status
server comprises state information storage means,

said network status server control program comprises a state information storing step of storing network state information between said respective sites provided with the dispersed/arranged information
5 distribution servers and said client, and state information in said site provided with the dispersed/arranged information distribution servers into said state information storage means, and

when said state information is stored in said
10 state information storage means, said collecting step comprises collecting said state information from said state information stored in said state information storage means.

15 153. The storage medium for storing the computer readable network status server control program according to claim 152 wherein when there is no access from said client for a predetermined period, said state information storing step comprises discarding said
20 network state information between the respective sites and the client stored in said state information storage means.

25 154. The storage medium for storing the computer readable network status server control program according to claim 152 wherein said program further comprises a state information discarding step of

discarding the state information in the site stored in said state information storage means after the predetermined period elapses.

5 155. The storage medium for storing the computer readable network status server control program according to claim 152 wherein said state information storing step comprises approximating and storing said state information in the site by a predetermined
10 approximation equation.

 156. The storage medium for storing the computer readable network status server control program according to claim 148 wherein said site determining
15 step comprises determining the site in which the respective logical distances between said respective sites provided with the dispersed/arranged information distribution servers and said accessed client are
 minimum as said optimum site.

20

 157. The storage medium for storing the computer readable network status server control program according to claim 148 wherein said first server determining step comprises determining the
25 predetermined information distribution server in said optimum site as the optimum information distribution server.

158. The storage medium for storing the computer
readable network status server control program
according to claim 148 wherein said first server
determining step comprises determining the information
5 distribution server determined in a predetermined order
as the optimum information distribution server.

159. The storage medium for storing the computer
readable network status server control program
10 according to claim 148 wherein said first server
determining step comprises arbitrarily determining the
information distribution server from the information
distribution servers in said optimum site.

160. The storage medium for storing the computer
readable network status server control program
according to claim 148 wherein said first server
determining step comprises determining the optimum
information distribution server based on the state
15 information in said optimum site.

161. The storage medium for storing the computer
readable network status server control program
according to claim 148 wherein when the network state
25 information between said respective sites provided with
the dispersed/arranged information distribution servers
and said accessed client is collected, said collecting

step comprises collecting at least one information of a response time, number of router steps, and a packet loss ratio between said accessed client and said respective sites.

5

162. The storage medium for storing the computer readable network status server control program according to claim 148 wherein said state information in the site comprises at least one of said network state information in the site and said state information of the information distribution server in the site.

163. The storage medium for storing the computer readable network status server control program according to claim 162 wherein when the network state information in said site provided with the dispersed/arranged information distribution servers is collected, said collecting step comprises collecting at least one information of a congestion degree, number of packets, and number of packet errors in said site.

164. The storage medium for storing the computer readable network status server control program according to claim 162 wherein when said state information of the dispersed/arranged information distribution servers is collected, said collecting step

comprises collecting at least one information of a CPU load ratio, a CPU idle value, number of connection links, and a disk load ratio of said information distribution server.

5

165. The storage medium for storing the computer readable network status server control program according to claim 148 wherein said network status server comprises path information storage means and state information storage means,

10

said network status server control program further comprises: a path information storing step of storing path information between said respective sites provided with the dispersed/arranged information distribution servers and said client into said path information storage means; and

15

a state information storing step of storing network state information between said respective sites provided with the dispersed/arranged information distribution servers and said client, and state information in said site provided with the dispersed/arranged information distribution servers into said state information storage means, and

20

said second server determining step comprises determining the information distribution server in which an optimum server judgment value S_{nm} in the following equations satisfies a predetermined condition

25

as the optimum information distribution server based on said stored path information, said state information and a predetermined weight coefficient;

- network state value: $K1n = RTn \cdot A + RNn \cdot B + PLn \cdot C$

5 • in-site network state value:

$$K2n = CSn \cdot D + PSn \cdot E + ESn \cdot F$$

- server state value:

$$K3nm = CPUnm \cdot G + IDLEnm \cdot H + LINKnm \cdot I + IOnm \cdot J$$

- optimum site judgment value:

10 $Kn = K1n \cdot K + K2n \cdot L + ASLn \cdot M$

- optimum server judgment value: $Snm = Kn \cdot N + K3nm \cdot O$

(additionally, n: number of sites, m: number of servers, A to O: weight coefficients, and for respective symbols, ASLn: logical distance between the networks by AS path (using the path information of BGP), RTn: response time, RNn: number of router steps (number of router hops), PLn: packet loss ratio, CSn: congestion degree in the site, PSn: number of packets in the site, ESn: number of packet errors, CPUnm: CPU load ratio, IDLEnm: CPU idle value, LINKnm: number of connection links, and IOnm: disk load ratio).

166. A storage medium for storing a computer readable information distribution system control program for controlling an information distribution system comprising: dispersed/arranged information distribution servers; and a network status server,

25

said control program comprising: in said
information distribution server,

an inquiring step of inquiring of said network
status server about the optimum information
5 distribution server among said information distribution
servers in response to an accessing client;

a response receiving step of receiving a response
from said network status server; and

an indicating step of indicating said optimum
10 information distribution server to said client,

in said network status server,

an inquiry receiving step of receiving the inquiry
from said inquiring step;

a logical distance obtaining step of obtaining
15 respective distances between said respective sites and
said client;

a site determining step of determining the optimum
site from said respective sites based on said obtained
logical distance;

20 a server determining step of determining the
optimum information distribution server from the
information distribution servers in the optimum site
determined by said site determining step based on a
predetermined condition; and

25 a response transmitting step of returning the
server determined in said server determining step as
said optimum server to said information distribution

server having transmitted the inquiry.

167. The storage medium for storing the computer
readable information distribution system control
5 program according to claim 166 wherein said information
distribution system further comprises a route server,
said control program comprises, in said route
server a logical distance calculating step of obtaining
a logical distance to a predetermined network address
10 from the path information between the sites, and
said logical distance obtaining step comprises
obtaining said logical distance calculated in said
logical distance calculating step.

15 168. The storage medium for storing the computer
readable information distribution system control
program according to claim 166 wherein the control
program further comprises: in said information
distribution server,
20 a step of collecting network state information
between the site to which the information distribution
server belongs and said client; and
a network state transmitting step of transmitting
said collected network state information to the network
25 status server.

169. The storage medium for storing the computer

readable information distribution system control
program according to claim 166 wherein the control
program further comprises: in said information
distribution server, a step of collecting network state
5 information in the site to which the information
distribution server belongs, and the state information
of the information distribution server; and

an in-site information transmitting step of
transmitting said collected network state information
10 in the site, and the state information of the
information distribution server to the network status
server.

~~170.~~ A storage medium for storing a computer
15 readable information distribution system control
program for controlling an information distribution
system comprising: dispersed/arranged information
distribution servers; and a network status server,

wherein said program comprises: in said
20 information distribution server,

an inquiring step of inquiring of said network
status server about the optimum information
distribution server among said information distribution
servers in response to an accessing client;

25 a response receiving step of receiving a response
from said network status server; and

an indicating step of indicating said optimum

information distribution server to said client, and

in said network status server,

an inquiry receiving step of receiving the inquiry from said inquiring step;

5 a logical distance obtaining step of obtaining respective logical distances between said respective sites provided with the dispersed/arranged information distribution servers and said client;

10 a collecting step of collecting network state information between said respective sites and said client, and state information in said respective sites;

15 a server determining step of determining the optimum information distribution server from said dispersed/arranged information distribution servers based on the logical distance obtained in said logical distance obtaining step, the network state information between said respective sites and said client, and said state information in the site collected in said collecting step; and

20 a response transmitting step of returning the server determined in said server determining step as said optimum server to said dispersed/arranged information distribution servers having transmitted the inquiry.

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171. The storage medium for storing the computer readable information distribution system control

program according to claim 170 wherein said information distribution system comprises a route server,

5 said control program comprises, in said route server, a logical distance calculating step of obtaining a logical distance to a predetermined network address from the path information between the sites, and

10 said logical distance obtaining step comprises obtaining said logical distance calculated in said logical distance calculating step.

172. The storage medium for storing the computer readable information distribution system control program according to claim 170 wherein the control
15 program further comprises: in said information distribution server,

20 a step of collecting network state information between the site to which the information distribution server belongs and said accessing client; and

25 a network state transmitting step of transmitting said collected network state information to the network status server.

173. The storage medium for storing the computer readable information distribution system control
25 program according to claim 170 wherein the control program further comprises: in said information

distribution server,

a step of collecting network state information of the site to which the information distribution server belongs, and the state information of the information
5 distribution server; and

an in-site information transmitting step of transmitting said collected network state information in the site, and the state information of the information distribution server to the network status
10 server.

~~174.~~ A storage medium for storing an information distribution system control program for controlling an information distribution system comprising:
15 dispersed/arranged information distribution servers; and a network status server,

said control program comprising: in said information distribution server,

an inquiring step of inquiring of said network status server about the optimum information
20 distribution server among said information distribution servers in response to an accessing client;

a response receiving step of receiving a response from said network status server; and

25 an indicating step of indicating said optimum information distribution server to said client, and in said network status server,

an inquiry receiving step of receiving the inquiry from said inquiring step;

a logical distance obtaining step of obtaining respective distances between said respective sites
5 provided with the dispersed/arranged information distribution servers and said client;

a collecting step of collecting network state information between said respective sites and said client, and state information in said respective sites;

10 a site determining step of, when it is judged that the access from said client is a first access, determining the optimum site from said respective sites based on the logical distance obtained in said logical distance obtaining step;

15 a first server determining step of determining the optimum information distribution server from the information distribution servers in the optimum site determined in said site determining step based on a predetermined condition;

20 a second server determining step of, when it is judged that the access from said client is not the first access, determining the optimum information distribution server from said dispersed/arranged information distribution servers based on the logical
25 distance obtained in said logical distance obtaining step, the network state information between said respective sites provided with the dispersed/arranged

information distribution servers and said client, and
said state information in the site provided with the
dispersed/arranged information distribution servers
collected in said collecting step; and

5 a response transmitting step of returning the
server determined in said first server determining step
or said second server determining step as said optimum
server to said dispersed/arranged information
distribution servers having transmitted the inquiry.

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175. The storage medium for storing the computer
readable information distribution system control
program according to claim 174 wherein said information
distribution system further comprises a route server,

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said control program comprises, in said route
server, a logical distance calculating step of
obtaining a logical distance to a predetermined network
address from the path information between the sites,
and

20

said logical distance obtaining step comprises
obtaining said logical distance obtained in said
logical distance calculating step.

25

176. The storage medium for storing the computer
readable information distribution system control
program according to claim 174 wherein the control
program further comprises: in said information

distribution server, a step of collecting network state information between the site to which the information distribution server belongs and said accessing client; and

5 a network state transmitting step of transmitting said collected network state information to the network status server.

10 177. The storage medium for storing the computer readable information distribution system control program according to claim 174 wherein the control program further comprises: in said information distribution server, a step of collecting network state information of the site to which the information
15 distribution server belongs, and the state information of the information distribution server; and

 an in-site information transmitting step of transmitting said collected network state information in the site, and the state information of the
20 information distribution server to the network status server.